

ALUMINUM ELECTROLYTIC CAPACITORS

SH

Miniature and general purpose Series

- Features: 105°C 2000 hours
- Recommended Applications: For high quality , reliability application, high CV product
- Corresponding product to RoHS

SH
↑
SE

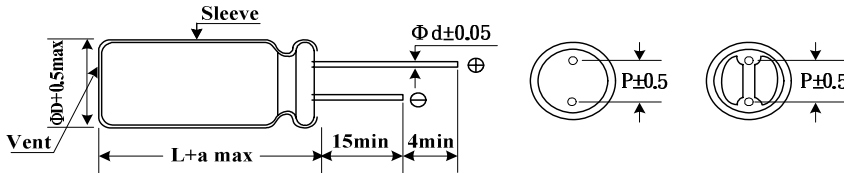
Long Life



Specifications

Item	Characteristics										
Operating Temperature Range	-40~+105°C					-25~+105°C					
Rated Voltage Range	6.3 ~ 100VDC					160 ~ 450VDC			500VDC		
Rated Capacitance Range	1~ 15000μF					1 ~ 470μF			2.2~82μF		
Capacitance Tolerance	± 20 % at 120Hz , 20°C										
Leakage Current (MAX)(20°C)	I=0.01CV or 3(μA), whichever is greater. I=0.03CV+10(μA) I=0.04CV+100(μA) (After rated voltage applied for 2 minutes)										
Dissipation Factor (MAX) (tan δ) (120Hz ,20°C)	WV	6.3	10	16	25	35	50	63~100	160~250	350~450	500
	tan δ	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.15	0.20	0.25
When nominal capacitance is over 1000uF , tan δ shall be added 0.02 to the listed value with increase of every 1000uF °											
Low Temperature Stability Impedance Ratio (MAX)											
	Z(120Hz)	6.3	10	16	25~100	160~250	350~450	500			
	Z-25°C / Z+20°C	4	3	2	2	4	4	6			
Z-40°C / Z+20°C	8	6	4	3	-	-	-				
Endurance	After applying rated voltage for 2000 hours at 105°C the capacitors shall meet the following requirements.										
	Capacitance Change	Within ± 20 % of initial value									
	Dissipation Factor	Not more than 200% of the specified value									
Leakage Current	initial specified value or less										
Shelf Life	After leaving capacitors under no load at 105°C for 1000 hours. the capacitors shall meet the same requirement as Endurance.										

Diagram of Dimensions



φ D	5	6.3	8	10	13	16	18	22
p	2.0	2.5	3.5	5.0		7.5		10.0
φ d	0.5	0.5	0.6	0.6		0.8		0.8
a	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0

Multiplier for Ripple Current

Frequency coefficient

Frequency (Hz)	120	300	1K	10K
6.3 ~ 100V Below 68 μF	1.00	1.30	1.57	2.00
6.3 ~ 100V 100 ~ 470 μF	1.00	1.23	1.34	1.50
6.3 ~ 100V 471 ~ 22000 μF	1.00	1.10	1.13	1.15
160 ~ 450V ALL Cap (μF)	1.00	1.25	1.40	1.60
500V ALL Cap (μF)	1.00	1.05	1.10	1.15

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■ Dimensions, Rated Ripple Current

Capacitance (μF)	Rated (Surge) Voltage																
	6.3 (8)		10 (13)		16 (20)		25 (32)		35 (44)		50 (63)		63 (79)		100 (125)		
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	
1.0												5x11	12	5x11	12	5x11	15
2.2												5x11	18	5x11	20	5x11	22
3.3												5x11	25	5x11	27	5x11	29
4.7												5x11	30	5x11	34	5x11	37
6.8												5x11	30	5x11	37	5x11	46
10										5x11	44	5x11	50	5x11	55	6.3x11	65
15										5x11	50	5x11	50	5x11	65	6.3x11	75
22								5x11	60	5x11	65	5x11	75	6.3x11	90	8x11	115
33					5x11	70	5x11	75	5x11	85	5x11	95	6.3x11	100	8x11	140	
47			5x11	75	5x11	85	5x11	90	5x11	100	6.3x11	115	8x11	155	10x12.5	185	
68			5x11	80	5x11	100	6.3x11	125	6.3x11	130	8x11	159	10x12.5	198	10x15	240	
100	5x11	100	5x11	110	5x11	130	6.3x11	145	6.3x11	170	8x11	200	10x12.5	260	10x20	305	
150	5x11	120	5x11	120	6.3x11	175	8x11	200	8x11	220	10x12.5	289	10x15	330	13x20	370	
220	6.3x11	165	6.3x11	180	6.3x11	220	8x11	240	10x12.5	315	10x12.5	360	10x20	465	13x25	520	
											10x15	415					
330	6.3x11	200	6.3x11	235	8x11	280	8x11	300	10x12.5	400	10x20	535	13x20	650	16x25	720	
			8x11	255			10x12.5	355									
470	6.3x11	230	6.3x11	250	8x11	375	8x15	420	10x15	480	10x20	630	13x20	700	16x32	875	
			8x11	305			10x12.5	440			13x20	730					
680	8x11	350	8x11	365	8x15	450	10x15	560	10x20	650	13x20	800	16x25	1000	16x36	1200	
			10x12.5	420	10x12.5	480											
1000	8x15	445	8x15	480	10x15	640	10x20	740	13x20	900	13x25	1060	16x32	1200			
	10x12.5	470	10x12.5	540													
1500	10x15	600	10x20	800	10x20	830	13x20	920	13x25	1050	16x25	1300	16x36	1450			
2200	10x20	800	10x20	870	13x20	1050	13x25	1230	16x25	1370	16x36	1600	18x36	1650			
3300	13x20	1100	13x20	1100	13x25	1250	16x25	1500	16x36	1680	18x36	1780					
4700	13x20	1180	13x25	1380	16x25	1650	16x32	1800	18x36	1920							
6800	13x25	1490	16x25	1700	16x32	1900	18x36	2050									
10000	16x32	1830	16x36	1950	18x36	2070											
15000	16x36	2090	18x36	2180													
22000	18x40	2350															

☆ Size: D φ x L (mm) ☆ Ripple Current: (mA/rms). 105 °C, 120Hz

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■ Dimensions, Rated Ripple Current

Capacitance (μ F)	Rated (Surge) Voltage															
	160 (200)		200 (250)		250 (300)		350 (400)		400 (450)		420 (470)		450 (500)		500 (550)	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
1.0	5x11	17	6.3x11	17	6.3x11	17	6.3x11	16	6.3x11	17	6.3x11	17	6.3x11	18		
2.2	6.3x11	25	6.3x11	25	6.3x11	29	8x11	31	8x11	31	8x11	29	8x11	30	8x11	25
3.3	6.3x11	36	6.3x11	36	8X11	42	8x11	35	8x11	35	8x11	34	8X15	42	8X16	30
4.7	6.3x11	43	8x11	50	8x11	52	8x11	45	8x11	45	10X12.5	55	10x12.5	52	8X16	34
6.8	8X11	54	8X11	60	8x11	62			10X12.5	55					10X12.5	38
8.2									8X15	60	10X15	68	10X15	62	10X16	50
10	8X11	70	10X12.5	80	10x12.5	80	10x15	80	10X15	80	10X20	98	10X20	85	10X20	70
15	10X12.5	90	10x15	110	10X15	110			10X20	100	13X20	130	13X20	120	13X25	100
22	10X15	115	10x20	140	10X20	140	13X20	150	13x20	150	13X25	155	13X25	150	13X25	115
33	10X20	160	13x20	200	13X20	200	13X25	200	13X25	200	16x25	205	16X25	210	18X25	180
47	10x20	195	13x20	220	13X25	240	16X25	260	16x25	265	16x25	235	16X25	260	16X32	180
68	13x20	255	13x25	280	13x25	290			16X32	410	16X32	400	18X32	370	18X32	250
82									18x25	390	18x25	380			18X36	290
100	13X25	350	16x25	350	16X25	380	18x32	400	18X32	500	18X36	490	18X36	495		
120									18X32	520	18x40	530	18X40	565		
150	16X25	435	16x32	480	16X32	420			18x36	550						
220	16x32	550	16x36	675	18X36	680			18x40	620	18x45	570	18X45	650		
330	18x36	800	18x36	750												
470	18x40	900														
680																

☆ Size: D ϕ x L (mm) ☆ Ripple Current: (mA/rms). 105°C, 120Hz